Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Location-Based Routing	)	PS Docket No. 18-64
For Wireless 911 Calls	)	
	)	

REPLY COMMENTS OF INTELIQUENT

Onvoy, LLC d/b/a Inteliquent, Inc. ("Inteliquent") files these reply comments in response to the Commission's Notice of Inquiry ("NOI") in the above-captioned proceeding on location-based routing for wireless 9-1-1 calls.[1]

Three themes run throughout comments filed in response to the NOI. First, device-based location information should be the cornerstone of solutions to improve 9-1-1 call routing accuracy. Second, the majority of the country is already on a path to Next Generation 9-1-1 ("NG911"). Commission efforts and industry resources should therefore focus on improving NG911 call routing based on the device location, however any Commission action should not preclude existing solutions from using device-based location as a routing option. And third, in jurisdictions that have implemented NG911, service providers are in the best position to ascertain the circumstances in which a Public Safety Answering Point ("PSAP") requires more precise location information to route 9-1-1 calls, because the need for this information varies according to the density of the population in the areas served by the PSAP.

[1] *See In re Location-Based Routing for Wireless 911 Calls*, Notice of Inquiry, PS Docket No. 18-64 (rel. Mar. 23, 2018) (hereinafter "NOI").

I. DEVICE-BASED LOCATION ROUTING IS THE BEST SOLUTION TO IMPROVING 9-1-1 CALL ROUTING

As Inteliquent detailed in its initial comments, the best solution to ensure that wireless 9-1-1 calls are initially routed to the appropriate PSAP is to derive location information directly from the device.[2] Location information derived directly from user devices can determine 9-1-1 caller locations faster and more accurately than alternative solutions. And because the capability to provide highly accurate location information already exists in modern mobile devices via GPS, WiFi, Bluetooth, and other technologies, this solution can be implemented quickly and cost-effectively to significantly decrease the current call routing issues identified by the NOI.[3]

Comments filed in response to the NOI establish broad-based support for the view that device-based location information is an integral component of solutions to improve call-routing accuracy. For example, LaaSer Critical Communications ("LaaSer") stated that device-based hybrid location technologies are "the best way to avoid delays" caused by redirected 9-1-1 calls in the existing routing systems.[4] Motorola Solutions, Inc. similarly explained that testing results from the recent NG9-1-1 Institute Technical Showcase "uniformly confirmed the ability of device-based hybrid solutions to deliver more accurate location information on a more timely basis as compared to the legacy wireless 9-1-1 architecture."[5] And several other commenters noted the potential for device-based location routing to improve 9-1-1 call routing.[6]

---

[2] Comments of Inteliquent, PS Docket No. 18-64 at 2 (filed May 7, 2018) (hereinafter "Inteliquent Comments").

[3] Inteliquent Comments at 2–4.

[4] Comments of LaaSer Critical Communications, PS Docket No. 18-64 at 5 (filed May 7, 2018) (hereinafter "LaaSer Comments").

[5] Comments of Motorola Solutions Inc., PS Docket No. 18-64 at 5 (filed May 7, 2018).

[6] *See, e.g.*, Letter from Reinhard Ekl, VP of Product & Public Safety, RapidSOS, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 18-64 at 1 (filed May 7, 2018) (hereinafter "RapidSOS Comments") (explaining that "use of device-based hybrid technology offers immense opportunity for

The Association of Public-Safety Communications Officials-International, Inc. ("APCO") correctly pointed out that the "problems created by misrouted 9-1-1 calls are made worse by the fact that—despite the sophistication of modern communications technology—even basic call transfers (regardless of the reason to transfer a call) are not necessarily possible."[7] Inteliquent agrees that this concern should be addressed, and submits that this is in fact a symptom of a broader problem that can be significantly mitigated by using device-based location information to initially route wireless 9-1-1 calls to the correct PSAP. Migration to NG911, accompanied by the ability to route calls based on device-based location information, will dramatically reduce the challenges associated with call transfers identified by APCO in an expedient and cost-efficient manner.[8]

Commenters also echoed the view that the Commission should not rely on centralized databases or other inflexible solutions to wireless 9-1-1 location routing.[9] As Inteliquent stated

improving access to 9 1 1 for consumers and saving lives."); Initial Comments of the Texas 9-1-1 Entities, PS Docket No. 18-64 at 14 (filed May 7, 2018) (hereinafter "Texas 9-1-1 Comments") (noting the "potential for using device-based handset initiated location technology solutions and emerging technologies for 9-1-1"); Comments of West Safety Services, Inc., PS Docket No. 18-64 at 10 (filed May 7, 2018) ("Over the past few years, handset-initiated location technologies have emerged as a potential option for location and location-based routing of 9-1-1 calls."); Comments of Mission Critical Partners, LLC, PS Docket No. 18-64 at 4 (filed May 7, 2018) ("device-based hybrid location pilot projects have demonstrated the ability to obtain a highly accurate location within 5-6 seconds").

[7] Comments of APCO International, PS Docket No. 18-64 at 2 (filed May 7, 2018) (hereinafter "APCO Comments").

[8] For call transfers that occur for reasons other than the limitations of Phase 1 call-routing, the solution is already on the horizon. Call transfers within a fully implemented NG911 system will be simple, fast, efficient, and will include the accurate location of the caller. Once Emergency Incident Data Document ("EIDD") functionality is implemented, all of the information gathered about an emergency call will be readily available to all of the stakeholders with a need to know the information, which will dramatically enhance call transfer capabilities. Thus, once NG911 is fully implemented, challenges with call transfers will be limited to transfers between NG911 systems and adjacent legacy systems. A growing consensus among 9-1-1 industry groups recognizes the need to create a more formal NG911 conformance testing program to focus on a range of interoperability challenges, including and especially interoperability between adjacent 9-1-1 systems.

[9] *See* Inteliquent Comments at 5.

in its initial comments, the National Emergency Address Database ("NEAD") was originally designed as a tool to dispatch first responders as opposed to location-based call routing.[10] APCO makes the same assessment, and "urge[d] caution on prematurely considering the use of the NEAD for routing purposes" as opposed to NEAD's "intended purpose."[11] Nor should the Commission consider holding 9-1-1 calls until a phase 2 location can be derived, which has not been shown to materially improve initial call routing and introduces needless delay into emergency dispatch services.[12]

II. THE COMMISSION SHOULD FOCUS ON NG911 LOCATION IMPROVEMENTS AND ALLOW FOR EXCEPTIONS IN LEGACY ENVIRONMENTS

Comments in response to the NOI made clear that the transition to NG911 is already well underway across the United States.[13] Thus, while Inteliquent's solution can adapt to the needs of local PSAPs regardless of whether they have transitioned to NG911-capable equipment, the Commission and emergency services industry should focus on facilitating NG911 technologies. Inteliquent estimates that approximately 75% of the U.S. population is already served or in the process of being served by an NG911 system. And Inteliquent's discussions with wireless carriers have confirmed their readiness to interface with these NG911 systems, including by

[10] Inteliquent Comments at 5.

[11] APCO Comments at 4.

[12] *See* Inteliquent Comments at 6.

[13] *See, e.g.*, Comments of T-Mobile USA, Inc., PS Docket No. 18-64 at 5–6 (filed May 7, 2018).

providing Presence Information Data Format Location Objects ("PIDF-LO") either directly or with the support of Inteliquent or other providers.

Inteliquent therefore agrees with T-Mobile that "the Commission must carefully consider the cost-benefit analysis of any changes to 911 call routing on legacy systems and refrain from proposing burdensome new rules that would divert resources away from deployment of new technologies and other forward-looking improvements."[14] Instead, the Commission "should focus its efforts on policy initiatives that hasten the transition to NG911 and encourage 911 stakeholders to migrate expeditiously to next generation technologies."[15] However, T-Mobile's position presupposes that the effort to implement more accurate location-based routing in legacy environments would add costs and require additional resources to implement. Inteliquent believes that there are ways to use device-based hybrid location to route calls in legacy environments that can take advantage of work done to support NG911 environments. Inteliquent recommends that any new rules allow for exceptions to the current legacy rules in J-STD-036 to enable device-based location routing, if the Originating Service Providers ("OSPs") support it.

Focusing on improving the accuracy of initial call routing on NG911 systems will also speed the transition to NG911 because it will motivate those states and 9-1-1 jurisdictions that have not yet begun migrating to NG911 systems to hasten the transition. And it will further incentivize wireless carriers to focus their infrastructure investments on interfacing with NG911 systems. The Texas 9-1-1 Entities acknowledged this point, and Inteliquent agrees with their evaluation that assuming a majority of 9-1-1 services areas deploy NG911 technologies within

[14] T-Mobile Comments at 6.

[15] T-Mobile Comments at 6; *see also id.* at 10 ("T-Mobile believes that focusing limited resources in an attempt to add location-based 911 call routing to legacy 911 systems would offer a poor return for a very significant level of effort. T-Mobile instead proposed that the concerted effort to improve 911 call routing be directly associated with the transition to NG911 systems.").

the next five years, "informed decisions and reasonable strategic transition planning with regard to cell sector misroutes might arguably favor certain voluntary best practices, implementation of incentive-based mechanisms, and/or regulatory action."[16]

III. IN NEXT GENERATION ENVIRONMENTS, NG911 SERVICE PROVIDERS ARE BEST POSITIONED TO ASSESS THE NEED FOR MORE ACCURATE 9-1-1 LOCATION INFORMATION

In jurisdictions that have migrated, the NG911 system is in the best position to assess the need for more accurate 9-1-1 location information based on the circumstances of local 9-1-1 authorities. This is so because the frequency of calls that are not initially routed to the appropriate PSAP, and therefore the need for more precise location information to avoid this problem, generally varies according to population density and the number of PSAPs serving the area.

Sparsely populated areas served by cell towers covered by a single PSAP generally do not experience a high volume of 9-1-1 calls that are not initially routed to the appropriate PSAP.[17] In these areas, using the current J-STD-036 will usually deliver the call to the desired PSAP. By contrast, densely populated areas are often served by cell towers covered by several PSAPs and therefore experience a greater volume of redirected 9-1-1 calls, as illustrated by the NOI's example of a wireless 9-1-1 call originating in Washington, D.C. but received by a cell tower in Northern Virginia, causing the call to be improperly routed to a Virginia PSAP.[18] St. Louis County, Missouri is another densely populated area that is greatly impacted by 9-1-1 call

[16] Initial Comments of the Texas 9-1-1 Entities, PS Docket No. 18-64 at at 11 n.21 (filed May 7, 2018) (hereinafter "Texas 9-1-1 Comments").

[17] *See* Texas 9-1-1 Comments at 2 ("For example, that data appears to show approximately 70% of the cell sectors indicated no misroutes, while approximately 10% of the sectors have greater than 50% misroutes, with certain enclave areas or cities surrounded by another city often being materially impacted by misroutes.").

[18] *See* NOI ¶ 1.

redirects due to the limitations of phase 1 cell tower-based call routing. According to an assessment from Black & Veatch that was shared with Inteliquent, 94% of 9-1-1 call transfers in St. Louis County are for wireless calls that must be redirected, and more than 3.5% of all the 9-1-1 calls handled by St. Louis County PSAPs are transferred before reaching the appropriate PSAP for dispatching.[19] In these areas, Inteliquent agrees with the California Governor's Office of Emergency Services ("CalOES") observation that "[t]he J-STD-036 is obsolete based upon the new devices and advanced networks and should be updated to promote the best location for initial call routing."[20]

As noted above, the migration to NG911 is well underway, and one of the key long-term benefits of NG911 is the ability to geospatially route calls to the proper PSAP. But because the value proposition of transitioning to NG911 varies according to population density and the number of PSAPs serving the area, Inteliquent agrees with T-Mobile that "NG911 service providers are in the best position to know when a more precise location is needed for PSAP selection than was available at the time of the emergency call and can take into account the uncertainty of a location estimate provided at call time and how that relates to PSAP jurisdictional boundaries."[21]

Particularly in densely populated areas, where phase 1 location information often leads to calls needing to be redirected to the appropriate PSAP, the best technical solution is device-based location information deposited in a Location Information Server ("LIS") and interrogated by the NG911 system at the ingress point. By contrast, phase 1 location information may continue to be

[19] *See* Appendix 1.

[20] Reply Comments of CAL OES 911 Branch, PS Docket No. 18-64 at 1 (filed June 21, 2018).

[21] T-Mobile Comments at 6.

appropriate in sparsely populated areas. T-Mobile appears to agree with this selective approach to the use of device-based location information to replace phase 1 cell tower-based location information.[22] And LaaSer and RapidSOS have both provided data to the Commission to support the accuracy and timeliness of this approach.[23]

[22] *See* T-Mobile Comments at 2–3 ("Specifically, the continued deployment of NG911 will obviate many of the issues addressed in the Communications Security, Reliability and Interoperability Council ('CSRIC V') 'Task 2' report ('LBE Report') and the Commission's Notice of Inquiry on location-based routing. In an NG911 environment, granular, intraregional routing decisions will be made by the ESINet operator rather than by the carrier, ensuring delivery of a 911 call to the most appropriate PSAP as determined by the relevant emergency services authority. Given this, the most important thing all stakeholders can do to improve 911 call routing is to support and encourage the expeditious transition to NG911.").

[23] *See* LaaSer Comments at 4–5; RapidSOS Comments at 2–3.

CONCLUSION

Comments in response to the NOI strongly support the view that device-based location information provides a strong foundation to solve the 9-1-1 call routing issues identified by the Commission. This foundation is anticipated in the NG911 architecture and may be utilized to enhance legacy environments. Any steps taken by the Commission should therefore facilitate and encourage device-based location routing for 9-1-1 calls, with a focus on encouraging the NG911 transition, but also allow for the option of applying the technology to legacy environments.

Respectfully submitted,

ONVOY, LLC D/B/A INTELIQUENT

By: /s/ Matthew S. DelNero

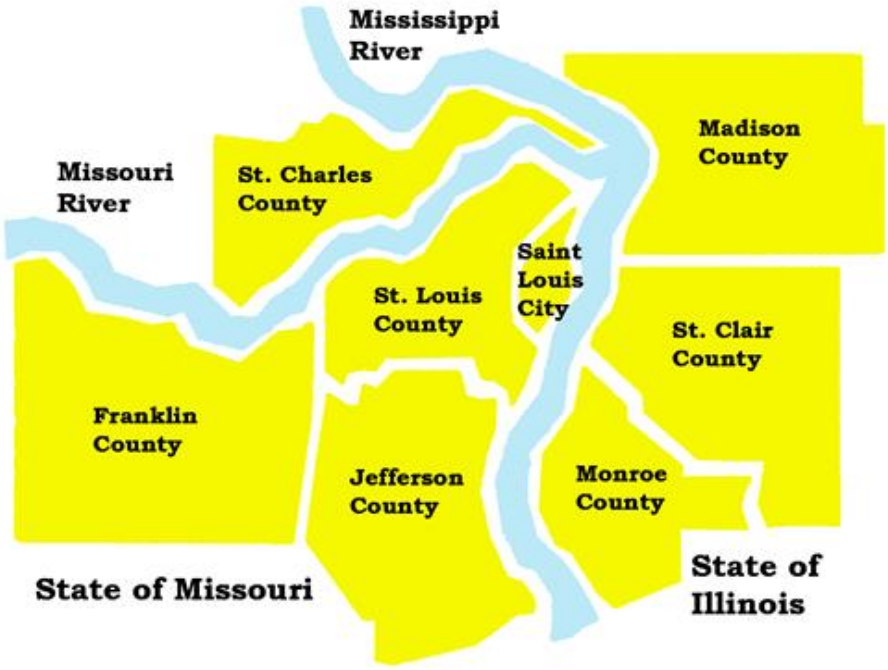
Matthew S. DelNero
David J. Bender
COVINGTON & BURLING LLP
One CityCenter
850 10th St., NW
Washington, D.C. 20001
(202) 662-6000

Counsel for Onvoy, LLC d/b/a Inteliquent

June 28, 2018

APPENDIX 1

Black & Veatch is working with St. Louis County and provided the following assessment:



Transfer of calls is currently a daily occurrence between St Louis County PSAPs and the neighboring PSAPs within Jefferson and St Charles County, the City of St Louis, and jurisdictions in Illinois. About 94% of 9-1-1 transfers are for wireless (mobile) calls that require redirection to the appropriate PSAP for dispatching. All call transfers within Missouri are processed through the ILEC's Selective Router but calls across the state line are handled over administrative lines and thus only the voice is fully transferred.

Below are the St Louis County annual 9-1-1 call volumes.

2012	2013	2014	2015	2016	2017
715,334	685,462	701,791	750,744	748,667	675,904

The number of 9-1-1 calls transferred FROM St Louis County to other PSAPs averages 1110/month for 2017. This represents 2% of the 9-1-1 call volume within St Louis County. Transfers FROM St Louis County to the City of St Louis alone exceeded 10,000 for 2017.

Exact numbers for calls transferred TO St Louis County is estimated to be approximately the same volume; however, the exact count is still being determined.

*Based on the numbers obtained over the past 18 months, over **3.5%** of 9-1-1 calls that handled by St Louis County PSAPs are transferred before reaching the appropriate PSAP for dispatching.*